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IS ENTREPRENEURSHIP MISSING IN SHANGHAI?¹

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ABSTRACT:

Using a unique census dataset on all industrial firms (with more than 5 million yuan in sales), we document a phenomenon of missing entrepreneurship in Shanghai. Entrepreneurship is defined as private, new entrants in our paper. Specifically, in terms of business density, the size of employment and a host of other measures, the relative ranking of Shanghai was always near the bottom in the country. All these empirical findings took place against a backdrop of the presumably huge locational advantages of Shanghai—the

¹ We thank Randall Morck and the participants at the NBER conference on international differences in entrepreneurship for their comments. We are grateful to S.P. Kothari, Joshua Lerner and Antoinette Schoar for their detailed comments on an early draft of this paper. We also thank Harrison Shih for RA work. The usual caveats apply.

substantial human capital, rapid GDP growth, and a long and stellar—but pre-communist—history of entrepreneurship. We propose a hypothesis that Shanghai adopted a particularly rigorous version of industrial policy model of economic development and this industrial policy proclivity may have led to the atrophy of entrepreneurship in Shanghai.

JEL Codes: F00, L26, R11

IS ENTREPRENEURSHIP MISSING IN SHANGHAI?

Economists and other scholars studying transition economies disagree with one another about the economic and political merits of mass privatization, financial reforms, and foreign trade reforms. Few, however, would dispute the vital importance of fostering the development of new, entrepreneurial businesses. Entrepreneurial businesses—defined as new entrants and as privately-owned—create jobs and promote growth at a time when state-owned enterprises (SOEs) are being downsized and retrenched. The economic contributions of new, entrepreneurial businesses in a transitional context exceed not only SOEs but also newly-privatized firms.

It has been estimated that the vast majority of new jobs in transition economies were created in the emerging private sector. McMillan and Woodruff (2002) provide some detailed data. In Vietnam, during the first seven years of reforms, the net job creation by the new private sector was 10 million, whereas job creation in the state sector was negative. In Romania and Slovakia, a higher portion of new private firms created jobs than either SOEs or privatized firms. New private firms also grew faster and invested at a higher rate (although the evidence here is not uniform). McMillan and Woodruff also report studies showing a positive correlation between general economic growth and entrepreneurial entry.

In this respect, it is particularly interesting and—as we would argue, analytically important—to note that a city widely regarded as a huge economic success in China, Shanghai, has an extraordinarily low level of entrepreneurship—defined as *de novo* private businesses in this paper. China as a whole is not short of entrepreneurship. Township and

village enterprises (TVEs) powered the Chinese economic growth in the 1980s and the early 1990s, a well-known fact. (What is less well-known, however, is that the vast majority of TVEs were *completely* private from the very beginning of reforms.²) Relative to the rest of the country, the level of entrepreneurship in Shanghai is conspicuously absent. This finding is robust to a variety of specifications, to detailed industry and firm-level controls and to alternative definitions of private firms.

This phenomenon of missing entrepreneurship in Shanghai raises a number of questions. One is that during the period of our dataset (1998-2001), Shanghai grew rapidly. Its annual real GDP growth was in excess of 10 percent every year. During this period, Shanghai attracted an enormous amount of FDI. (In 2004, FDI inflow amounted to 6 billion dollars, equivalent to the FDI inflow into the entire country of India.) That entrepreneurship was missing at a time when GDP growth was fast and in the richest region in China calls into the question about the mechanism of growth in Shanghai as well as the question why the benefits of this growth did not accrue to the indigenous entrepreneurs in Shanghai. We offer some conjectures about these two issues in the concluding section.

There is also an analytical issue. There are not many *prima facie* reasons why entrepreneurship should be missing in Shanghai. We will elaborate on this point more fully in Section 1 of the paper. Suffice to say that the phenomenon of missing entrepreneurship in Shanghai is particularly intriguing given our primary measure of entrepreneurship. In this

² Huang (2008) studies this issue in detail. Based on detailed archival research of Chinese documents going back to the early 1980s, Huang found that the Chinese definition of TVEs refers to their geographic location—i.e., rural location of these firms. Western academics, by contrast, assume that TVEs refer to their *ownership*—by townships and villages. This confusion is massive. In 1985, of 12 million TVEs, 10 million were straightforward private.

paper, we measure the state of entrepreneurship by the density of private businesses—number of private businesses per population—and by the average number of employees per entrepreneurial business. Our priors are that Shanghai should have performed very well by these measures of entrepreneurship.

In the 1990s Shanghai experienced a massive restructuring of SOEs. Total employment in the city fell. In 1995, the broadest measure of employment in the city stood at 7.9 million; in 2000 it was 6.7 million, a reduction of 15 percent (mainly due to the restructuring in the state sector). Shanghai had one of the highest unemployment rates in the country during the 1990s. This is an important macro context against which our regression results should be understood.

The reason is that Shanghai should have performed very well by our measures of entrepreneurship absent of any policy barriers. Because of the high and rising unemployment, there should be ample incentives to go into entrepreneurship (e.g., self-employment). One issue in the studies of entrepreneurship is whether self-employment is really a disguised form of unemployment. The tradeoffs between self employment and other employment in Shanghai are not substantial during the period in question. Also to the extent that policy played a role, it is interesting to note that Shanghai had a low level of private business density even at a time when SOEs were shedding jobs on a large scale.

Much of the economics literature on how government affects entrepreneurship focuses on the role of regulations. This focus has led to a proliferation of studies on and development of measures of “ease of doing business.” In this paper, we propose that government affects entrepreneurship not only through regulations but also through economic policies. Governments in developing countries seldom stand aside and let market

determine resource flows among different economic sectors. They directly intervene to privilege certain industries to the detriment of other industries. This is industrial policy.

Among local governments in China, Shanghai is known as having a particularly strong industrial policy proclivity. Our hypothesis for the phenomenon of missing entrepreneurship in Shanghai is that it is industrial policy that suppressed entrepreneurship in Shanghai. We provide narrative and descriptive evidence of this industrial policy proclivity of Shanghai (although, due to the data limitations, we are currently unable to link industrial policy explicitly with our entrepreneurial measure in our main dataset).

An industrial policy model may be anti-entrepreneurial in several ways. One is that it favors incumbent businesses because incumbent businesses are large. This is the familiar national championship rationale. The second anti-entrepreneurial bias embodied in industrial policy is a technocratic mechanism. The emphasis placed on technology may prompt a government to privilege one type of investments—foreign direct investment (FDI), often associated with high tech—at the expense of indigenous small, low-tech entrepreneurs.

A third prominent characteristic associated with an industrial policy model is entry restriction and government targeting of firms. Often would-be entrepreneurial businesses are viewed as competing away precious resources such as bank credits and, critically in the case of Shanghai, land. Although economists have studied the effects of industrial policy on competition and corruption (Ades and Di Tella 1997), our study probes the potentially detrimental effects of industrial policy on entrepreneurship.

Our main empirical findings are generated by a unique dataset. This is Chinese Industry Census (CIC) compiled by National Bureau of Statistics (NBS). (We will provide more details of this dataset in Section 1 of this paper.) Our dataset is the most detailed dataset on firm activities in China. It is an annual *census* covering 1998, 1999, 2000 and 2001,

i.e., the dataset includes *all* the industrial firms—regardless of ownership types of firms—with sales value above 5 million *yuan* for those four years. The advantage, compared with survey data, is that our dataset is very comprehensive and this advantage is especially important because Western researchers often have to rely on survey data supplied by Chinese researchers who often do not disclose the details of their sampling procedures. (Or their sampling procedures may contain known or unknown biases.) Another advantage is that because our dataset contains information on firms of all ownership types we can benchmark entrepreneurial firms against incumbent firms (such as SOEs). Very few surveys cover firms of all ownership types.

There are some disadvantages, to be sure, with this dataset. One is that CIC covers firms, rather than entrepreneurs. Due to this limitation, we cannot go into details about why and how entrepreneurs in our dataset became entrepreneurs. We leave this question to other scholars who have looked into this issue (see, for example, Djankov et al. 2006). We hope that factors such as motivations, education, and gender—those personal attributes deemed as pertinent to entrepreneurial proclivity in the academic literature—do not systematically vary between Shanghai and other regions of China.

The second limitation of CIC is that it only covers industrial firms. This raises the issue whether Shanghai, being the most urban economy in China, may have larger service-sector entrepreneurial firms. This bias is not too severe, for two reasons. One is that we are benchmarking Shanghai against other cities. The vast majority of firms in excess of 5 million yuan in sales are urban firms and, to the extent we can, we try to control for factors such as rural migration. Second, unlike metropolitan economies in the developed countries, Shanghai has not entered into the post-industrial age. In terms of employment, industry still accounted for 55 percent of the total as of 2001 so it was still larger than the service sector. The results

reported in this paper also do not differ qualitatively from the results reported in a previous version of this paper which used private-sector survey conducted in 2002 that did include service-sector firms.³

The other disadvantage with CIC is that it has a cutoff threshold at 5 million yuan in annual sales. This means that CIC is biased toward the larger industrial establishments in China. The issue here is whether these larger industrial establishments can still be considered as “entrepreneurial.” We answer in the affirmative. One reason is the recent vintage of these firms—almost all the private firms in CIC were created in the 1990s. The other reason is that an important criterion of the quality of a business environment is whether it facilitates the *growth* of entrepreneurial businesses. It is thus meaningful to ascertain if entrepreneurial businesses located in the richest and the fastest-growing regional economy in China, *ceteris paribus*, can grow. In our empirical implementation, we also benchmark the size of entrepreneurial businesses against the size of incumbent businesses such as SOEs. This is to illustrate the relative size differentials between entrepreneurial businesses and non-entrepreneurial businesses between Shanghai and other regions of China.

The paper is organized as follows. Section 1 is a detailed empirical illustration of the missing-entrepreneurship phenomenon in Shanghai. The second section offers a hypothesis why entrepreneurship is missing in Shanghai. The hypothesis centers around the suppressive role of industrial policy. The final section concludes with some remarks on the broader implications of our findings.

³ The 2002 private-sector survey was used in a previous version of this paper and it shows that Shanghai, after controlling for a variety of industry and firm characteristics, has among the smallest entrepreneurial firms in the country.

THE MISSING ENTREPRENEURSHIP IN SHANGHAI: AN EMPIRICAL INVESTIGATION

One reason why the phenomenon of missing entrepreneurship in Shanghai is interesting is that this view contrasts sharply with the conventional wisdom in the West about the city—that Shanghai is a dynamic economy. The other reason is that Shanghai has a number of locational and other advantages that should have been propitious to the development of entrepreneurship. In this section we illustrate some of these factors. We then explain our data and our measures.

Some basic facts about Shanghai.

Shanghai is located in the southeastern region of China.⁴ It is a coastal city, with a total area of 6,300 square kilometers. According to the 2000 population census, it had a population of around 16.7 million. Shanghai is an economic center of China. With a population of only 1.3% and a land area of 0.1% of the national total, its GDP is about 5.4% of the national total and 6.9% of the country's total industrial output value. It is the richest region in China.

To underscore an earlier point, industry continues to power Shanghai's economy. Shanghai is the country's biggest producer in a number of products, such as chemical fibers, ethylene, cars, program-controlled exchanges, power generating equipment and personal computers. During 2000 to 2004, Shanghai's heavy industry grew at an annual rate of 24.9% and its light industry grew at 10.4%. Our dataset thus still offers valuable insight about the city even though it is limited to industrial firms only.

⁴ Some of these figures are taken from the website of the Shanghai government at <http://www//shanghai.gov.cn>.

Our priors are that Shanghai should have been abundantly endowed with entrepreneurship if the policy environment had been accommodating. For one thing, history is on its side. Shanghai has a long history of entrepreneurship. In the first three decades of the twentieth century, Shanghai was a major business and financial hub of Asia. It was the home of the country's largest textile firms and banks. It was also the founding venue of a number of firms that are still major MNCs in the world today, such as Hong Kong Shanghai Banking Corporation (HSBC) and American Insurance Group (AIG).

A very powerful illustration of Shanghai's rich entrepreneurial heritage is the near absolute dominance of the Hong Kong economy by industrialists who left Shanghai in 1949.⁵ During the take-off period of Hong Kong, the most important industry in Hong Kong was textiles. As recently as 1977, the textile industry produced 47 percent of Hong Kong's export value and employed 45 percent of its workers. In the late 1970s, Shanghai industrialists owned twenty-five—out of a total of thirty—cotton spinning mills in Hong Kong. Between 1947 and 1959, Shanghai industrialists created twenty out of the twenty-one cotton spinning mills established during the decade. It is not an exaggeration to say that the Hong Kong miracle was a Shanghai miracle in disguise. Thus, it is surprising that contemporary Shanghai should be so short of entrepreneurship.

Entrepreneurial businesses in Shanghai also have some substantial locational advantages. It is one of the most important economic centers of China and thus agglomeration economics should favor its entrepreneurs. There are substantial business opportunities. Measured in terms of per capita GDP, Shanghai is the richest economy in China. Shanghai has the highest GDP per capita in the country. In 2005, its GDP per capita

⁵ For a very good account of the role of Shanghai industrialists in Hong Kong, see Wong (1988).

was about 5 times the national average. In the 1990s, the GDP growth averaged above 11 percent in real terms every year.

Some scholars believe that entrepreneurship is rooted and embedded in the culture of the place. According to Kirzner (1979), entrepreneurs are those who are particularly alert to business opportunities that often elude others. Saxenian (1994) attributes the difference between Route 128 and Silicon Valley to the latter's more freewheeling culture. Although this is highly anecdotal, the "folk wisdom" in China is that people in Shanghai satisfy one particular definitional feature of entrepreneurs very well. The reputation of Shanghainese is that they are well endowed with business acumen. Shanghai also has other huge advantages as well. It has a rich endowment of human capital, being the home of a number of the best educational institutions in the country (such as Fudan and Jiaotong).

Economics literature stresses the importance of institutions in explaining economic growth. In particular, institutions protecting private property rights and enforcing contracts are of first-order importance (Acemoglu, Johnson, and Robinson 2005; North 1991). New firm growth in transitional economies is shown to be highly sensitive to the security of property rights (Johnson, McMillan, and Woodruff 2000). Financing constraints are another factor emphasized by economists as important to investment decisions by private firms (Levine 1997).

These theories may not readily apply to our Shanghai story, at least not in their original formulations. China does not have well-developed legal and financial institutions but it is not clear why Shanghai is substantially under-developed as compared with other regions in China. The conventional wisdom is just the opposite. China scholars believe that Shanghai has the most developed legal system in China (Guthrie 1999) and many Western legal academics used Shanghai as a case study to illustrate progress China has made in rule of law

(Clarke and Whiting 2008). The other reason is that transitional economists have shown that there are a variety of “self-help” coping mechanisms entrepreneurs have devised to ameliorate the shortcomings of formal institutions. Entrepreneurs, for example, only do businesses with people they know and they rely on supplier or customer credit to obviate dependency on banks (McMillan and Woodruff 1999a; McMillan and Woodruff 1999b). Thus even if formal institutions in Shanghai are found to be wanting, a deeper and a more relevant question is why these informal self-help coping mechanisms have also failed to work in Shanghai.

Data: Chinese industry census (CIC)

Our empirical investigation is based on the Chinese Industry Census (CIC) compiled by NBS in China. CIC is, to our knowledge, the most detailed database on Chinese industrial firms. It covers the entire population of Chinese companies with sales above 5 million yuan for each of the census years from 1998 to 2001. The firms covered by CIC accounted for a huge portion of Chinese economy. One estimate put out by Geng (2006) is that the CIC firms accounted for between 33 to 43 percent of industrial output value and 14 to 19 percent of China’s GDP. Other researchers who have used this dataset have uncovered important dynamics about Chinese economy (Dougherty and Herd 2005).

The dataset is extremely detailed. It contains information about each company’s identity, address, industry classification, incorporation year, total employment, annual payments of wage and fringe benefits, the hierarchical level the company answers to (regional, provincial, town-level, etc.), registration types such as SOE, private firms, FIEs. The dataset also lists three main products in the order of their relative importance to the firm and the production capacities for these three products, respectively. The dataset

contains detailed balance sheet information, such as assets, debt, and shareholder equity. We also have information on sales, profits, and exports. In addition, there are detailed records of the breakdowns of the equity capital by their domestic and foreign sources (and foreign investments are further broken down between ethnically Chinese investors and foreign investors). Other details about the dataset are described in Huang, et al (2008).

Our main measures of entrepreneurial development are the number of entrepreneurial businesses per city normalized by population and the average firm employment. However, these measures can be influenced by conventional business dynamics such as technology, the extent of competition in an industry, or the capital intensity of an industry. The difficulty is how to distinguish the effects of policy environment—which is our suggested hypothesis for why entrepreneurship is missing in Shanghai—from industry effects. One may argue, for example, that Shanghai’s industry mix is the reason why the city has fewer entrepreneurial businesses or their size tends to be small.

We tackle this challenge in two ways. First, we have detailed industry controls in all our regression analyses. One of the most significant advantages of CIC is that it contains detailed industry breakdowns. The Chinese standard of industrial classification (CSIC), modified in 1988, was adapted from International Standard of Industrial Classification (ISIC). The CSIC in our dataset is at the four-digit level, detailed to the level of product groupings, such as leather shoes, as opposed to just shoes. Such fine industry classifications allow us to control for technological and other dynamics at the near product level. Our industry controls, as far as we know, are one of the most detailed and precise among this type of studies (Hall, et. al. 2001; Khan and Qian, 2007). The panel structure further helps to eliminate any time-invariant industry-specific effects.

Our second method is to use the registration information provided in CIC. We show that entrepreneurial businesses in Shanghai are under-developed both absolutely and relatively. They are smaller or fewer as compared with other cities and they are smaller or fewer relative to the non-entrepreneurial businesses such as SOEs as compared with other cities. Because CIC contains information on the ownership types of firms, we are able to benchmark private firms against SOEs.

A widely-accepted definition of entrepreneurship is that it is a start-up business. The private-sector firms in CIC satisfy this condition. The absolute majority of firms classified as privately-owned in the 1998-2001 CIC were founded in the 1990s. For those firms covered in the 2000 CIC, their average number of years of operation is 5.3 for the Shanghai sample and 9.7 for the whole China sample in CIC for 2000. Thus a typical entrepreneurial business in Shanghai was founded in 1995. (In our regression analysis, we will control for the age of firms.)

The vast majority of the private-sector firms were not privatized SOEs. They are thus the only category of firms in China that are without substantial ties to the government. Even many FIEs are joint ventures with SOEs with ties to the government. They are very small, with a median employment of 134 persons in the national sample. This is far below the conventional 500-person cut-off threshold for large firms used by the World Bank (Batra, Kaufmann, and Stone 2003).

They also fit with a behavioral definition of entrepreneurship. Compared with the state-owned incumbent firms, the private-sector firms are very nimble, completely profit-driven and market-driven. This is an attribute emphasized by scholars such as Frank Knight (1921) and Israel Kirzner (1979). These firms also unleash what Schumpeter called “creative destruction” by offering new products and services and injecting competition to challenge

incumbents (Schumpeter 1976 (5th edition)). Our concept of entrepreneurship is entirely consistent with previous research on entrepreneurship in transition economies (McMillan and Woodruff 2002).

The vast majority of entrepreneurial firms in our dataset, in all likelihood, are still run by their original founders, thus satisfying another condition that these firms be classified as entrepreneurial. None of the private-sector firms in our dataset is listed on the Chinese stock markets and they have a very concentrated ownership structure. The dataset we are using for this paper does not contain detailed information on the founders but in a 2002 survey on private-sector firms that are very similar to the private-sector firms in our dataset, the average number of shareholders is only 5.6 persons and the median number of shareholders is only 2. The largest number of shareholders is 54. So unlike managers in SOEs and MNCs, the managers of these private-sector firms bear significant residual risks and benefits of ownership.

Variables

We rely on two primary measures of the development of entrepreneurship and we benchmark Shanghai against other cities in China on these two measures. The two measures are the number of private businesses per city and the employment size of a private business. Both of our measures follow closely the standard treatments in the economics literature. Firm number is often used as an indicator of business development (Spulber, 2008). This is a measure of business density. We derive this measure of business density in two ways. One is the ratio of the number of entrepreneurial businesses to the city population. The other is a more explicit measure of *entrepreneurial* business density, which is a ratio of the number of entrepreneurial businesses to the number of incumbent businesses—defined as state-owned

enterprises (SOEs) in our paper. (We have also carried out regression analysis based on the log value of the number of entrepreneurial businesses. The results are qualitatively similar and are not shown in this paper).

An alternative measure is the log value of employment size per firm. There is a long tradition in the economics literature using employment size as a measure of business development (Cabral and Mata 2003; Kumar, Rajan, and Zingales 1999). We use these two measures in part to be consistent with prior studies in economics but also in part because these are especially relevant to Shanghai. Private businesses create jobs and in the context of a transition economy they are the only source of job creation. The ability to generate employment by entrepreneurial businesses at a time when the SOEs are shedding jobs entails enormous welfare implications. For this reason, economists studying entrepreneurial dynamics in transition economies also focus on employment (Johnson, McMillan, and Woodruff 2000).

This employment measure is particularly pertinent to Shanghai. In the 1990s, while its economy grew rapidly, Shanghai lost a large number of jobs. In 1995, aggregate employment stood at 7.9 million; by 2000 it was 6.7 million, a reduction of 15 percent. Since 2000, however, there has been a recovery in the creation of employment. Only in 2004 did aggregate employment in Shanghai recover to its 1995 level of 8.1 million. The jobless growth of Shanghai highlights the important role of policy. Later in this paper, we propose the hypothesis that Shanghai was an industrial policy state maximizing technological objectives and growth of big firms. This policy orientation was detrimental to employment generation as well as to the small-scale entrepreneurial businesses. We hypothesize that it is this feature of Shanghai that depressed entrepreneurial development of that city.

In all our regression analysis, we include industry fixed effects and a set of provincial characteristics. In some of the regression runs, we also control for a set of firm-level characteristics. The firm-level controls refer to age of firms—used to proxy for the experience accumulated by the firm, the level of their debt (measured by debt to asset ratios), and the level of political hierarchy of firms. The first two controls are common in economic studies and the last one is specific to China. In China, firms of all ownership types are assigned to a particular level of political hierarchy for management purposes or for data reporting. We control for this dynamic in our analysis. Industry controls refer to the four-digit CSIC as mentioned before to proxy for technology, capital intensity and other industry characteristics.

In our regression analysis, we benchmark Shanghai against other cities in China. We used the five-digit regional codes in CIC to generate 360 city dummies. (The five-digit regional code is at a county level and we aggregated the five-digit county codes to three digit city codes.) We present our results in two ways. One is to benchmark Shanghai against all other cities (or national average) in the dataset; the other is to show city-by-city results. In the latter case, because of the large number of cities, we will only show the summary results. (We have also carried our regression analysis benchmarking Shanghai against other provinces. Shanghai is known as a provincial-level city so it is often treated as a province rather than as a city. The provincial-level analysis—not shown in this paper—yielded qualitatively similar results as the ones reported here based on city-level analysis.⁶)

Because our regressions have city dummies, we cannot control for their economic characteristics. Instead, we control for a set of economic characteristics at the provincial level. There are 30 provinces in China and these provinces vary enormously in their levels of

economic development, trade openness, and the level of rural migration. In all our regression runs, we include log value of per capita GDP of all the provinces (GDP per capita) and trade to GDP ratio (Trade openness). We use their values as of 1995 (National Bureau of Statistics 2005).

Some may argue that rural migration may affect entrepreneurial development in Shanghai or our measures of entrepreneurial development.⁷ There are two concerns here. One is that CIC only covered those firms formally registered with the government. To the extent that rural—and unregistered—migrants also operate businesses, our measure will leave them out. A related concern is that Shanghai, because of its ageing population, has been particularly open to rural migration. If this is the case, according to this hypothesis, our results will have a downward bias for Shanghai.

A logical implication of this hypothesis is that Shanghai has a larger informal economy. In fact, there is no evidence that this is the case. In 2004, the Chinese government conducted a most comprehensive economic census of all the business in the country whether registered or unregistered. The most common unregistered businesses are what is known in China as household businesses—mom-and-pop single proprietorships. According to the 2004 economic census, Shanghai has the lowest ratio of unregistered to total household businesses in the country, around 16 percent. By contrast, in the more entrepreneurial provinces such as Guangdong and Zhejiang the ratios are much higher (50 percent and 60 percent, respectively). For the country as a whole, the ratio is 45 percent. Incidentally, Shanghai has an identical ratio as another well-known statist province in China, Jilin, in which 16 percent of household businesses were unregistered.

⁶ The results are available from authors upon request.

⁷ We thank Randall Morck for making this suggestion.

There is no *prima facie* reason why Shanghai's missing entrepreneurship is due to a measurement error. Nevertheless, in order to control for any potential impact of rural migration on our measure of entrepreneurship, we include a variable that can act as a proxy of rural migration (Rural migration). We derived this measure from a private-sector survey conducted in 2002, which asked a question about the background of the polled entrepreneurs. On the basis of their answers, we coded all the entrepreneurs as rural or urban-born and calculated the rural-born entrepreneurs as ratios of all the entrepreneurs. The data are at the provincial level. We used this variable as a proxy of rural migration. (It should be noted that by this measure there is no evidence that Shanghai is particularly open to rural entrepreneurial migrants. About 28 percent of Shanghai's entrepreneurs polled in 2002 were from rural areas, compared with 42 percent for the country as a whole.) In Table 1, we present the descriptive statistics of the main variables used in the regression analysis.

[Insert Table 1 here.]

Regression results

Table 2 reports regression results on the business density measure as our dependent variable. This variable is the number of private firms in a city divided by population of that city. First, let us note the findings on the provincial-level controls. There is some evidence that rural migration indeed boosts entrepreneurship. Rural migration is positively associated with higher level of business density. Trade openness is also positive but GDP per capita is negative. The latter result indicates that private sector development is most substantial in the poorer and marginal regions of the country, a hypothesis formulated by Huang (2008).

After controlling for these province-fixed effects, Shanghai city dummy has a significant effect on our business density measure. Specification (1a) benchmarks Shanghai

against the average number of private firms in all other cities. The estimation indicates statistically significant negative Shanghai-fixed effects in relationship with the local private firm establishments. The Shanghai dummy is negative and statistically significant at the 1% level. This means that the number of private firms in Shanghai is smaller than the national average after all the economic and industry characteristics are controlled for. Since we examine the number of firms in each industry, data for this set of analyses are aggregated at the city and industry level and no firm-level controls can be included. Specification (2a) includes all other city-fixed effects but omits the Shanghai dummy as a benchmarked city. The results are rather striking: There are 136 positive and statistically significant city dummies and 111 negative and statistically significant city dummies. Recall that there are 360 city dummies altogether. Thus despite the fact that Shanghai is the richest city in China with many favorable endowment factors, it has under-performed against a large number of cities in China. Many of these cities have a fraction of GDP per capita as compared with Shanghai.

[Insert Table 2 here.]

We further refined our measure by devising a more explicit measure of entrepreneurial business density. We benchmarked private firms against the SOEs and FIEs—the established incumbent businesses in our dataset—by generating two ratios: the number of private firms in a city divided by the average number of SOEs in that city and the number of private firms in a city divided by the number of FIEs in that city. To be as accurate and as fine-tuned as possible, we calculated these two ratios by each city and industry for 1998. We repeat the regression analyses on these two alternative dependent variables of private firm numbers in ratios to SOEs and FIEs. Results are robust across these two alternative ratio dependent variables. To preserve space, we only report the results of the ratio between private firm establishments and SOEs (Columns 2a and 2b in Tables 2). We

want to highlight the fact that by this measure Shanghai outperformed only 35 other cities in China and under-performed against 125 other cities. It is not statistically distinguishable from additional 200 cities. This finding is certainly at a huge variance with the impression often conveyed by Western scholars that Shanghai is “the head of the dragon” (Guthrie 1999).

We report findings based on the second measure of entrepreneurship in our paper—size of firm employment—in Table 3. The log value of firm employment is the dependent variable. The provincial-level economic controls and industry-fixed effects are identical to those used in Table 1 and Table 2. Specification (1a) shows negative coefficient on the Shanghai dummy, statistically significant at the 1% level, illustrating that the private firms in Shanghai are smaller than the national average among all cities. We then omitted the Shanghai dummy to set it as a benchmark for comparison, and included all the other city dummies. The number of cities that have statistically significantly larger private firms than Shanghai does (238) is almost six times more than the number of cities that have statistically significantly smaller private firms (45), as displayed in Column 2b of Table 3. Recall again that there are 360 cities in total in the sample.

We then generated the ratio variables to capture the relative employment size of private firms to SOEs in each city and in each industry. We used this employment ratio as the alternative dependent variable in specifications (2a) and (2b) in Table 3. Since these data are generated at the city and industry level, firm level characteristics are not included in the regression runs. The results show that Shanghai has smaller private firm size relative to local SOEs in the same sector than 150 other cities, as indicated by the fact that 150 other cities carry statistically significant and positive coefficients. Debt/equity ratio of a private firm is significantly and positively associated with the firm employment size, and private firms that

answer to province or local governments tend to have larger employment size than those that answer to central government, as demonstrated by the positive and significant coefficients on the set of political hierarchy dummies.

[Insert Table 3 about here]

To check the robustness of results, we used additional proxies for entrepreneurship to the two traditional ones reported above. In particular, we generated log of sales and total assets of the private firms to serve as alternative dependent variables. Table 4 reports the findings based on these two measures. Again, there are overwhelmingly more cities that have statistically larger sales and asset levels of private firms than Shanghai does. This is clearly indicated by the 163 positive and significant coefficients on the other city dummies and 45 significantly negative city coefficients in the sales specification (Column 1b in Table 4), and by the 343 significantly positive city coefficients and only 2 significantly negative city coefficients in the total assets specification (Column 2b in Table 4).

In addition, we have also carried out regression analysis by using different definitions of private firms. This is necessary in part because the registration status of a firm may not accurately reflect the true shareholding arrangement of a firm. For example, an SOE can be privatized but its registration status can still remain as an SOE. We thus used the information on shareholding structure in CIC and devised different thresholds for private firms. We thus define a private firm alternately as one with 30 percent private shareholding; 50 percent or 80 percent. The regression results are largely unaffected. The only change is that Shanghai tends to have bigger firms as measured in terms of assets when the private investors are minority shareholders, i.e., when private equity share is 30 percent.⁸ The most likely reason is that Shanghai has more publicly-listed firms than other cities and the vast

majority of publicly-listed firms in China only have 30 percent of their shares being freely tradable on the stock market. The rest of the shares are held by government agencies or state-owned institutions.

WHY ENTREPRENEURSHIP IS MISSING IN SHANGHAI? A HYPOTHESIS

In the previous section, we showed that entrepreneurship in Shanghai is underdeveloped relative to other cities in China. This is so despite the fact that the city has some substantial historical and economic advantages that would be normally propitious for entrepreneurial growth. In this section, we offer a conjecture that the “missing entrepreneurship” phenomenon is related to policy, specifically industrial policy. The gist of industrial policy is to favor large and incumbent firms and to favor those firms in high-tech industries. The vast majority of the entrepreneurial businesses in China are low-tech and are, by definition, small. It is in this sense that industrial policy undermines entrepreneurship.

Our account here is descriptive and narrative. It is a conjecture rather than a direct empirical demonstration of the suppressive effect of industrial policy. As will be detailed later in this section, the genesis of the industrial policy model was laid down in the late 1980s, well beyond the coverage of our dataset. This makes it difficult to perform a “before-after” analysis of the effect of introduction of industrial policy on entrepreneurship. Our approach is to document the historical rise of industrial policy model in Shanghai and argues that this account is descriptively consistent with the statistical results presented in the previous section.

⁸ The results are available from authors upon request.

The rise of industrial policy model in Shanghai

The rise of industrial policy model in Shanghai closely coincided with the political fortunes of two Chinese leaders—Jiang Zemin and Zhu Rongji. Jiang became mayor of Shanghai in 1985 and its Party secretary in 1987. Zhu replaced Jiang as its mayor in 1987 and as its Party secretary in 1989. (All Chinese government agencies are headed by two individuals, the Party secretary and the administrative leader.) Both of these leaders are known as consummate technocrats in China, having been trained as engineers and having spent long careers in technology before coming to Shanghai. Jiang had been minister of the electronics industry before moving to Shanghai and Zhu had worked in the State Economic Commission, the agency in charge of upgrading China's technology base.

There is another significant implication associated with these two leaders—they ruled China from 1989 to 2002. Jiang Zemin was promoted to the general Party secretary of the Chinese Communist Party in 1989 and Zhu Rongji was promoted to the executive vice premier in 1991, governor of China's central bank in 1993, and premier in 1998. In other words, these two individuals, who staffed the central government heavily with technocrats from Shanghai, fundamentally shaped China's economic policy direction in the 1990s. Huang (2008) argues and present evidence that China in the 1990s substantially moved toward a commanding-heights style of economic development under Jiang and Zhu.

We have documentary and some statistical evidence that the rule by Jiang and Zhu in the second half of the 1980s coincided with economic centralization in Shanghai and preceded a huge contraction of fixed asset investments by the private sector. A policy milestone in Shanghai's development is a 1987 government document, "A comprehensive development program for Shanghai" (Yatsko 2004). The program laid out many of the key elements of Shanghai's aspirations to transform itself into a world-class city in short order.

The document did not include specific details about what would become the famous Shanghai landmarks in the 1990s, such as the Pudong district, the Maglev train, etc. The 1987 document set forth a rationale that came to justify these highly costly projects—Shanghai was to join the ranks of the global, world-class cities by the early twenty-first century. Considering that Shanghai only had a per capita GDP in 1987 of less than US\$800, this was an extraordinarily ambitious goal.

The 1987 development program established two key mechanisms to leapfrog Shanghai. One was the internationalization of the Shanghai economy, not just any internationalization but one based on advanced technology and global brands. The other mechanism was a systematic push to eliminate all vestiges of those extant features of the city considered to be backward by the policy elites. These included those small and informal market activities that were a ubiquitous sight in urban China in the 1980s—food and vegetable stalls operated by peasants at the intersections of cities and the countryside. In the first half of the 1980s, many spontaneous marketplaces had sprung up in various neighborhoods in central Shanghai, hawking goods ranging from vegetables, eggs, and even small-scale industrial goods.

The 1987 development program set up a bureaucratic mechanism to systematically cleanse Shanghai of these backward vestiges—a super municipal agency headed by the Shanghai mayor himself. This agency centralized all urban planning decisions. The Pudong project, which was to convert an area of 350 square kilometers of farmland into a financial and commercial center in very short order, was first conceived by this agency. The essence of the Pudong model is deceptively simple: The government, as the monopoly buyer facing no competition, was to requisition vast tracts of land from rural households at below-market prices and then auction off the land-use rights at prevailing market prices. The proceeds

from the land sales were then used to finance the government's industrial policy programs, welfare and pension obligations, and, last but not the least, corruption.

We have some evidence that the 1987 development program had immediate effect on entrepreneurship in Shanghai. One reliable indicator of private sector development is the share of capital for fixed asset investments by the private sector. Figure 1 presents the percentage shares of capital for fixed asset investments by what is known as “individual economy” in the Chinese statistical parlance—equivalent to single proprietorship or self employers in the West. In the 1980s and up to the mid-1990s, individual economy units comprised the absolute majority of indigenous private sector in China.

[Insert Figure 1 here]

The patterns are striking. In the first half of the 1980s, Shanghai was liberalizing. The fixed asset share of the individual economy rose from 3.2 percent in 1978 to 10 percent in 1985. The year 1985 marked the peak of private-sector development in Shanghai. The turning point thus seems to be around 1986, the first year of Jiang Zemin's rule. Shanghai's ratio of 10 percent in 1985 of fixed-asset investments by individual economy units to the total fixed-asset investments would not be exceeded again. The ratio declined sharply to 7 percent in 1986, then to 5.8 percent in 1991, and to only 1.1 percent in 1993. Over the next ten years this ratio steadily declined further from an already negligible level in 1993. In 2004, the share was 0.2 percent. At 0.2 percent, this is less than one-tenth of the level in 1978.

We should highlight this finding—that the adverse policy environment in Shanghai was detrimental to both small mom-and-pop businesses represented in Figure 1 and to the larger private sector firms covered by CIC. This finding helps us differentiate between two competing explanations for policy reversals in Shanghai. One is that the reversal was entirely

exogenous—that it coincided with the appointment of two consummate technocrats as Shanghai leaders in the second half of the 1980s. This is our candidate explanation.

The other explanation identifies an endogenous cause. This is the explanation offered by Rajan and Zingales (2003) for why many countries chose to reverse the financial liberalization policies.⁹ There are important analytical as well as empirical reasons to sort out the true causal mechanisms here. The incumbent-power argument would lead one to believe that the entrepreneurial atrophy observed during the 1998-2001 was a result of Shanghai's early success whereas our own candidate explanation is that early on Shanghai chose a developmental model that entails important path-dependency dynamics many years down the road. There is also the issue whether we can be confident that our explanation—an overbearing industrial policy state—is truly exogenous rather than an endogenous outcome of earlier entrepreneurial successes.

Data in Figure 1 help us rule out the endogenous explanation. The policy reversal occurred in Shanghai when the private sector of the city was substantially under-developed vis-à-vis the rest of the country (a situation that persisted into the 1998-2001 as we saw earlier). At its peak, the individual economy accounted for 10 percent of the total fixed assets in Shanghai whereas during the early 1980s for China as a whole the ratio was more than 20 percent. Shanghai reversed its private-sector policies when its private sector was very weak, not when it was strong.

⁹ We thank Antoinette Shoar for pointing out the potential link between our paper and this strand of economics literature.

The visible hand of the state

The flip side of the entrepreneurial development is a highly interventionist and visible hand of the state. In this part of the paper, we document some of the regulatory and policy practices in Shanghai that may be the candidate mechanisms explaining why entrepreneurship is missing in Shanghai. Our description here—based on relatively systematic survey evidence and on some interview data—is again at a sharp variance with a widespread view in the West that Shanghai has the most developed market economy in China.

An example of research that shows Shanghai to have strong property rights protection is Fan et al. (2007).¹⁰ Their property rights protection is based on “the suit frequency and court efficiency.” By this measure, Shanghai is ranked very high in property rights protection. We will note that the measure by Fan et al. (2007) contains some ambiguities as well as empirical anomalies. For one thing, the measure by Fan et al. (2007) does not distinguish between state property rights and private property rights. In an economy in which state property rights are given an automatic precedent over private property rights, we believe that it is highly significant to distinguish between *state* property rights and *private* property rights in a measure of property rights protection.

It is quite possible that this definitional ambiguity may have led to a number of empirical anomalies in Fan et al. (2007). For example, by their measure, the two bastions of SOEs, Jilin and Liaoning, are given the same score as two pioneering, reform-oriented and market-conforming provinces of Guangdong and Fujian. By the same measure, Jiangsu is ranked as having stronger property rights protection than Zhejiang. This ranking is rather

¹⁰ We thank Professor Randall Morck for bringing our attention to this paper.

inconsistent with some basic facts about China. Zhejiang is known as among the most entrepreneurial and capitalistic province in China whereas Jiangsu is known—at least until the late 1990s—as interventionist and state-controlled. Zhejiang is associated with the laissez-faire Wenzhou model that permits substantial informal credit to the private sector; Jiangsu is associated with the Sunan model that promoted collective TVEs and restricted private enterprises.

We present an alternative ranking of Chinese cities. Our evidence comes from a World Bank survey conducted over 120 cities in China in 2005. The research from this survey appears in *China Governance, Investment Climate, and Harmonious Society: Competitiveness Enhancements for 120 Cities in China* (World Bank 2006). The report awards Shanghai as a silver medalist in its overall assessment of its investment climate (World Bank 2006, pp. 46-47). The World Bank survey has three main components: 1) city characteristics, 2) government effectiveness, and 3) social measures of environmental quality, health, and education. Shanghai ranks very high in a composite ranking of these three components. Shanghai is No. 6 in investment climate for domestic firms and No. 17 in investment climate for foreign firms.

Upon closer inspection of the data, it is clear that Shanghai scores high in the stock conditions. Out of the three components in the World Bank survey, two of them—city characteristics and social measures—are strongly influenced by history and by the policy treatments of the central government. On these two measures, it is not surprising that Shanghai would score very high. It has an excellent geographic position augmented by massive investments by the central government in its port facilities. It has a high level of human capital and China's best hospitals and educational institutions.

Only the measure on government effectiveness truly reflects the portion of the investment climate that is subject to the discretionary influences of local governments. This measure is based on a range of indicators, such as taxes, bureaucratic red-tape, and an indicator that is widely found to be closely correlated with corruption—time spent with government officials. The findings on government effectiveness are much more meaningful in terms of both analytical and policy implications. There is very little a Chinese city located in an interior region can do about its geographical isolation, but it can improve its competitive position by strengthening its policy effectiveness.

On this measure, Shanghai has a remarkably low score. Its government effectiveness is ranked No. 77 in the country as perceived by domestic firms (in comparison with No. 6 in the overall investment ranking). Its ranking improved substantially in the perception by foreign firms, where it ranked No. 26 in the country. In other words, Shanghai is ranked in the bottom third of the Chinese cities by domestic firms while it is ranked in the top third of the Chinese cities by foreign firms.

Interviews conducted by one of the authors of this paper with entrepreneurs in Shanghai revealed a portrayal of business environment in Shanghai more consistent with the World Bank ranking of the Chinese cities. These interviews uncovered a range of restrictive policies toward household businesses in Shanghai.¹¹ These restrictions only began to ease in 2005. A summary of some of these policy restrictions appears below:

- 1) The Shanghai government imposed onerous restrictions on who could start a second job as a private entrepreneur. University professors, civil

¹¹ The interviews were conducted in October 2007 by Yasheng Huang with entrepreneurs, lawyers who specialize in registration regulations, officials at the All-China Federation of Industry and Commerce, an organization representing private-sector

servants, SOE general managers, and workers for the non-profit organizations were not allowed to start private businesses on the side. They had to quit their current jobs, the effect of which is that it took away the risk insurance that comes with a regular job, an insurance that was necessary at the beginning of the reforms. After 2005, this restriction only applies to civil servants.

- 2) The government imposed a registration capital requirement and required entrepreneurs to register the entire amount of the capital requirement on the day of registration. Thus a potential entrepreneur would have to show the proof of the requisite capital rather than being able to pay in the registered capital by installments.
- 3) Shanghai has very strict zoning regulations. Residential apartments cannot be used for commercial purposes and if a resident rents out residential space on commercial lease, it has to be approved by the government. The government enforces this law very strictly and in fact more strictly than before. One effect of this policy is that it raises the business and rental costs of household entrepreneurs.
- 4) Shanghai government tightly controls land transactions. A concrete indicator is that in the demolition business—a huge business now in Shanghai as the city demolishes many old buildings to build new structures— all the firms are completely state owned. This shows the intention of the Shanghai government to strongly control land allocation.

businesses. In addition, Huang also visited several district offices of Shanghai Bureau of Industry and Commerce, the agency in charge of registering and licensing firms.

- 5) In the critical infrastructure projects, the Shanghai government explicitly forbids private-sector firms from bidding for the projects. Since much of the GDP growth in Shanghai in the 1990s was generated by these investment projects, private-sector firms missed out on one of the key growth areas of the economy.
- 6) Shanghai government favors foreign-invested enterprises (FIEs, firms with at least 25 percent of foreign equity) both explicitly and implicitly. One implicit form of policy favoritism is that the Shanghai government allows FIEs to deduct the actual labor costs from their tax liabilities. Domestic firms are allowed to deduct labor costs only to the extent of an average level specified by the government. The government purposely set a lower level of salaries compared with the market rate, thus limiting the deductions by domestic firms.
- 7) The World Bank does not classify China as having onerous business licensing procedures, as compared with other transition economies. The length of time to start a business is about 40 days and to register a business, 30 days. This is substantially better than Vietnam where it could take six months to set up a business (McMillan and Woodruff 2002). The World Bank's reporting is based on China's business licensing regulations. A close reading of these regulations and other accompanying documents at several business licensing offices in Shanghai reveal how misleading this classification is. The 30-day length refers to the amount of time required by the licensing office to notify an applicant whether his application for license is successful. However, before the business is eligible to apply for a

license, the business needs documentation from numerous government agencies. For example, if an entrepreneur intends to set up a stall in a location, she has to obtain a permit from the agency in charge of that location. She also has to obtain certificates from health and labor bureaus. If she cannot provide a separate business address from her home address, she has to provide documentation that her home has been certified for dual residential and business usage.

- 8) The licensing office accepts an application for a business license *only after* all these documentation requirements are satisfied. A number of entrepreneurs commented that while these documentation requirements are uniform across China they are being enforced with vigor in Shanghai, meaning that the documentation has to be complete whereas in other regions of the country the licensing agencies do not insist on complete documentation.

CONCLUSION

A widespread view among economists is that China has adopted a particularly innovative and welfare-enhancing blend of reform policies that delayed privatization of SOEs while solving efficiency and social problems via encouraging new entry (Rodrik 2007; Roland 2000). Shanghai seems to have done exactly the opposite—it has aggressively restructured SOEs, at a staggering social cost, while it has restricted entry. Private business density is among the lowest in the country even when its unemployment is among the highest.

Our microeconomic findings on Shanghai entail some important implications not just about Shanghai but about China. (As pointed out before, China since 1989 has been ruled by technocrats from Shanghai.) The story of Shanghai is one of two extremes. At one extreme, Shanghai is viewed as a model of economic development and as a symbol of a rising and prosperous China. At the other extreme, Shanghai appears to lack, almost completely, as we have shown, a microeconomic mechanism widely regarded as important for economic growth, competition, job creation and innovation—private-sector entrepreneurship. Despite the wide adulation of the city, very few analysts have undertaken a serious data analysis. This paper, at least to our knowledge, is the first systematic effort to get at an important microeconomic mechanism of growth in Shanghai.

The finding is at a substantial variance with the common view held by Western observers that Shanghai has the most developed market economy in China. We find that controlling for a variety of industry- and province-fixed effects and firm-level dynamics entrepreneurial businesses in Shanghai lagged substantially behind entrepreneurial businesses located in other Chinese cities. This is so despite the fact that Shanghai is historically very entrepreneurial and possesses propitious endowment factors that would be normally associated with a flourishing of entrepreneurship. We offered a conjecture that a strong push into an industrial policy model of economic development by the Shanghai leaders since the second half of the 1980s was the reason for this missing-entrepreneurship phenomenon in Shanghai.

Our paper also has implications for Shanghai and for China as a whole. The “tyranny of numbers,” in the words of Alywn Young (1995) led us to cast substantial doubt on the economic foundation of Shanghai. It is beyond the scope of this paper to deal with this issue but one hypothesis offered by Huang (2008) is that GDP grew very fast in Shanghai in the

1990s because Shanghai, on account of its political privilege, was massively subsidized by the rest of the country. Another hypothesis, offered by Huang (2008) is that Shanghai's anti-entrepreneurial growth model, while allowing fast GDP growth, has done relatively little to improve the welfare of the average residents in Shanghai. The evidence in support of the latter hypothesis is already available. In the 1990s, while Shanghai's GDP per capita increased to 5 times of the national means its household income per capita relative to the nation as a whole changed very little. More research is needed to investigate this issue and the connections between the missing-entrepreneurship phenomenon documented in this paper and the seemingly stagnant household income growth in Shanghai.

TABLES AND FIGURES

Table 1 **Summary statistics**

This table provides the summary statistics of the variables used in the analyses

Variable	Observation	Mean	Std. Dev.
Employment	148856	346.74	1879.87
Age	148856	37.75	210.19
Leverage	144594	.59	.29
Political hierarchy level of the firm	148856	55	18
Total Assets	148856	68979.17	619996.3
Sales	148856	41555.31	317716.4
Rural Migration	148856	37.71	10.74
Trade openness	148856	28.35	8.41
GDP per capita	148856	6708.66	3900.64
Living Expenditure	148856	6247.04	1443.78
Registration type	148856	152.87	56.83
Average Employment Size in the private sector divided by that in the SOE firms	2148	1.57	7.65
Average Employment Size in the private sector divided by that in the Foreign-affiliated firms	2148	1.20	3.93
Average Number of Private Firm Establishments at the city and industry level	5538	2.77	5.57
Average Number of Private Firms as a ratio of the Number of SOE Firms at the city and industry level	2261	1.34	2.41

Note: The political hierarchy level of a firm refers to the level of the bureaucracy a firm answers to. This variable takes on value 10 if the firm answers to the central government, to 20 if provincial-level; to 40 if regional level; 50 if county-level; 61 if street-level; 62 if town-level; 63 if village-level; 71 if residential-association level; 72 if village-association level; and 90 otherwise. The leverage variable is defined as total assets subtract shareholder equity and then divided by total assets. Registration type identifies the firm's ownership. SOE is defined by registration type 110; private firms as registration type between 170 and 174, and foreign-affiliated firms, i.e., FIEs, as registration type between 200 and 340.

Table 2 Density of private firms (private firm number divided by city-level population) as the dependent variable

Notes:	The dependent variable is the density of private firms in a city or their ratio to SOEs. Standard errors are clustered at the industry level and GLS models are applied. Shanghai dummy is included in regression specifications (1a) and (2a) and is omitted in (1b) and (2b). Provincial economic characteristics, firm-level attributes and industry-fixed effects are controlled for.			
Variables:	(1a) No. of Private Firms/local population	(1b) No. of Private Firms/popn	(2a) Ratio of private to SOEs	(2b) Ratio of private to SOEs
Panel (1) Substantive variables:				
Shanghai dummy	-.02*** (.005)	Omitted	-1.88*** (.39)	Omitted
No. of statistically significant positive city dummies		136		125
No. of statistically significant negative city dummies		111		35
Panel (2) Provincial-level economic controls:				
Rural migration	.0004*** (.0001)	.0002 (.0001)	.02*** (.01)	-.010 (.010)
Trade openness	.000*** (.000)	.000*** (.000)	-.000 (.000)	.000*** (.000)
GDP per capita	.001 (.003)	-.011*** (.001)	.63** (.24)	-.52*** (.13)
Constant	.001 (.032)	.10*** (.01)	-4.84** (2.19)	5.61*** (1.14)
Panel (3) Industry controls:				
Industry dummies included	Yes	Yes	Yes	Yes
Panel (4) Summary statistics:				
No. of observations	5460	5460	2261	2261
R ²	0.18	0.27	0.21	0.30

Table 3 Private firm employment as the dependent variable

Notes:	<p>The dependent variable is the log number of employees per private firm or their ratios to SOE employment. Standard errors are clustered at the industry level and GLS models are applied. Shanghai dummy is included in regression specifications (1a) and (2a) and is omitted in (1b) and (2b). Provincial economic characteristics, firm-level attributes and industry-fixed effects are controlled for.</p> <p>*: 5% statistical significance **: 10% statistical significance</p>			
Variables:	(1a) Log employees	(1b) Log employees	(2a) Ratio of private to SOE employment	(2b) Ratio of private to SOE employment
Panel (1) Substantive variables:				
Shanghai dummy	-1.67*** (.65)		-.84 (.87)	
No. of statistically significant positive city dummies		238		150
No. of statistically significant negative city dummies		45		117
Panel (2) Provincial-level economic controls:				
Rural migration	.041*** (.005)	.05*** (0.01)	-.014 (.013)	-.28*** (.03)
Trade openness	.002*** (.000)	.0003*** (.0001)	-.002 (.001)	-.0003*** (.0001)
GDP per capita	.66*** (.21)	-.13* (.08)	-.193 (.435)	-4.25*** (.47)
Panel (3) Firm level controls:				
Age of firms	.000 (.000)	-.0002 (.0001)		
Debt/asset ratio	.64*** (.09)	.28*** (.05)		
Political hierarchy: Provincial level	1.77*** (.45)	1.50*** (.30)		
Political hierarchy: regional level	1.34***	1.15*** (.15)		

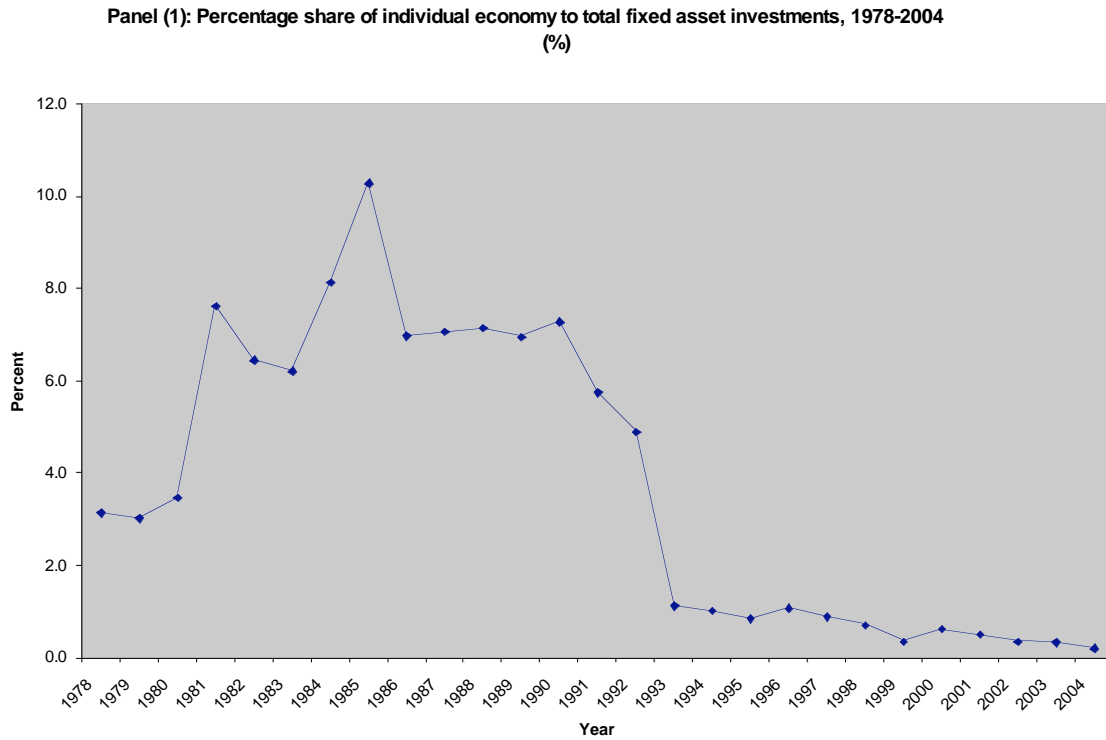
	(.25)			
Political hierarchy: county-level	1.28*** (.16)	.85*** (.14)		
Political hierarchy: Street-level	1.03*** (.19)	.59*** (.15)		
Political hierarchy: town level	1.25*** (.14)	.75*** (.13)		
Political hierarchy: village level	1.18*** (.14)	.70** (.25)		
Political hierarchy: residential-association level	.51** (.20)	.35 (.28)		
Political hierarchy: village-association level	.86*** (.12)	.59*** (.12)		
Constant	7.16*** (1.36)	-9.25*** (.60)	4.54*** (.92)	50.67*** (4.91)
Panel (4) Industry controls:				
Industry dummies included	Yes	Yes	Yes	Yes
Panel (5) Summary statistics:				
No. of observations	10139	10139	2148	2148
R ²	0.32	0.63	0.44	.62

Table 4 Alternative dependent variables: Log sales and log assets

Notes:	<p>The dependent variables are log sales and log assets. Standard errors are clustered at the industry level and GLS models are applied. Shanghai dummy is included in regression specifications (1a) and (2a) and is omitted in (1b) and (2b). Provincial economic characteristics, firm-level attributes and industry-fixed effects are controlled for.</p> <p>*: 5% statistical significance **: 10% statistical significance</p>			
Variables:	(1a) Log sales	(1b) Log sales	(2a) Log assets	(2b) Log assets
Panel (1) Substantive variables:				
Shanghai dummy	-.14 (.16)		-.38* (.21)	
No. of statistically significant positive city dummies		163		343
No. of statistically significant negative city dummies		45		2
Panel (2) Provincial-level economic controls:				
Rural migration	-.002 (.002)	-.012*** (0.004)	-.007*** (.002)	-.010*** (0.004)
Trade openness	.0001 (.0001)	-.001*** (.0001)	-.0001 (.0001)	-.0001 (.0001)
GDP per capita	.23** (.11)	.66*** (.12)	-.23** (.10)	-.53*** (.09)
Panel (3) Firm level controls:				
Age of firms	.000 (.000)	-.000 (.000)	.000 (.000)	.0007 (.0007)
Debt/asset ratio	.14*** (.05)	-.42*** (.07)	.63*** (.06)	0.586*** (0.057)
Political hierarchy: Provincial level	-.33 (.40)	.03 (.42)	1.58*** (.36)	1.90*** (0.34)
Political hierarchy: regional level	.34***	.15 (.15)	1.70*** (.20)	1.53***

	(.15)			(0.20)
Political hierarchy: county-level	.10 (.15)	-.01 (.16)	1.27*** (.19)	1.16*** (0.19)
Political hierarchy: Street-level	.19 (.17)	-.04 (.17)	.71*** (.21)	0.57** (0.21)
Political hierarchy: town level	.18 (.13)	-.06 (.13)	.88*** (.18)	0.70*** (0.18)
Political hierarchy: village level	.26** (.13)	.09 (.13)	.84*** (.17)	0.77*** (0.18)
Political hierarchy: residential-association level	.14 (.17)	-.04 (.19)	.74*** (.24)	0.62** (0.24)
Political hierarchy: village-association level	.14 (.12)	.03 (.12)	.65*** (.17)	0.63*** (0.17)
Constant	7.08*** (.69)	7.71*** (.64)	8.97*** (.63)	9.97*** (.80)
Panel (4) Industry controls:				
Industry dummies included	Yes	Yes	Yes	Yes
Panel (5) Summary statistics:				
No. of observations	10139	10139	10139	10139
R ²	.20	.22	.21	.29

Figure 1 Fixed-asset investments by the individual economy in Shanghai, 1978-2004



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